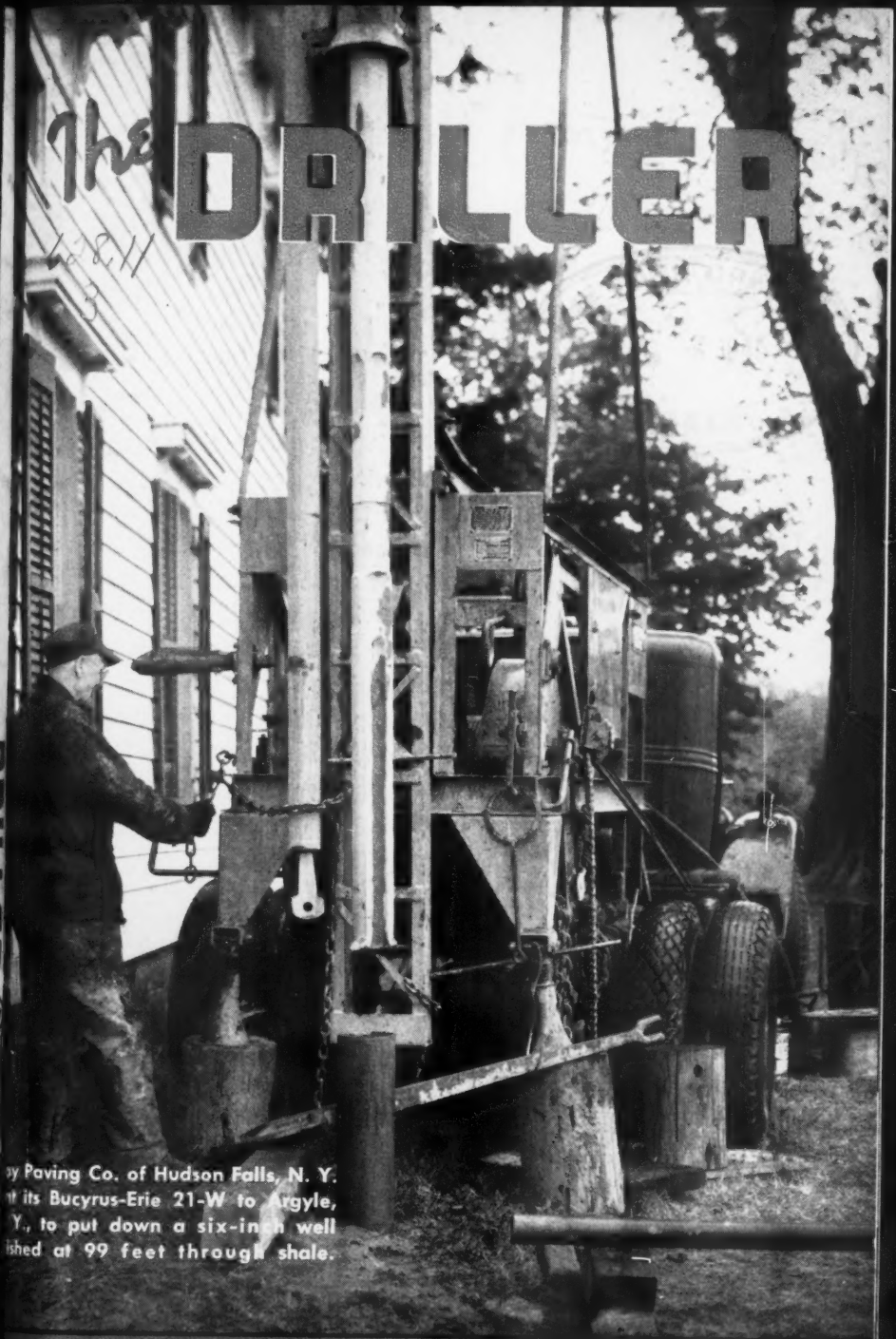
The DRILLER



...y Paving Co. of Hudson Falls, N. Y. ...t its Bucyrus-Erie 21-W to Argyle, ...Y., to put down a six-inch well ...ished at 99 feet through shale.

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...UME 19 AUGUST 1945 NUMBER 8

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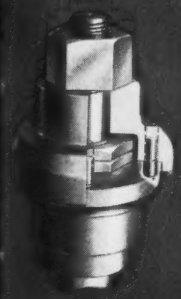

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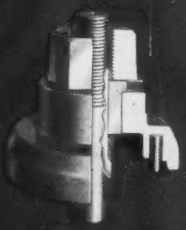

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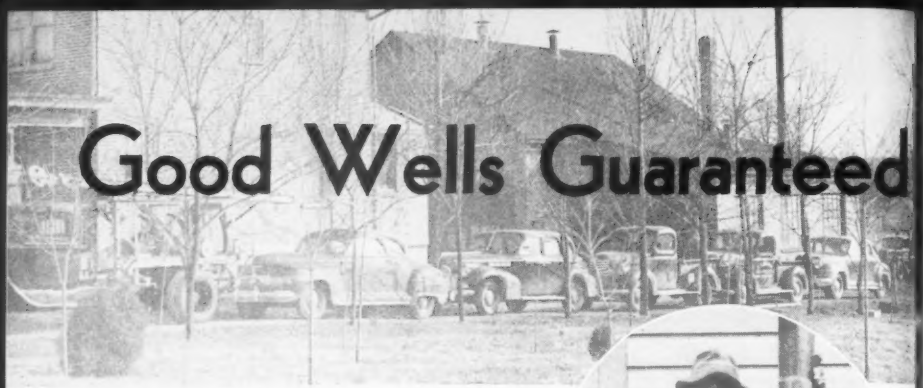


Garage proprietor for 14 years and well contractor for 16, Pennsylvania's C. S. Garber can promise water from every well drilled. Smart drilling, accurate records, and efficient operations help maintain his position of leadership.

WHEN we asked Claude S. Garber of Yellowhouse, Pennsylvania, to tell us about his toughest drilling job he replied, "I'll take you there now."

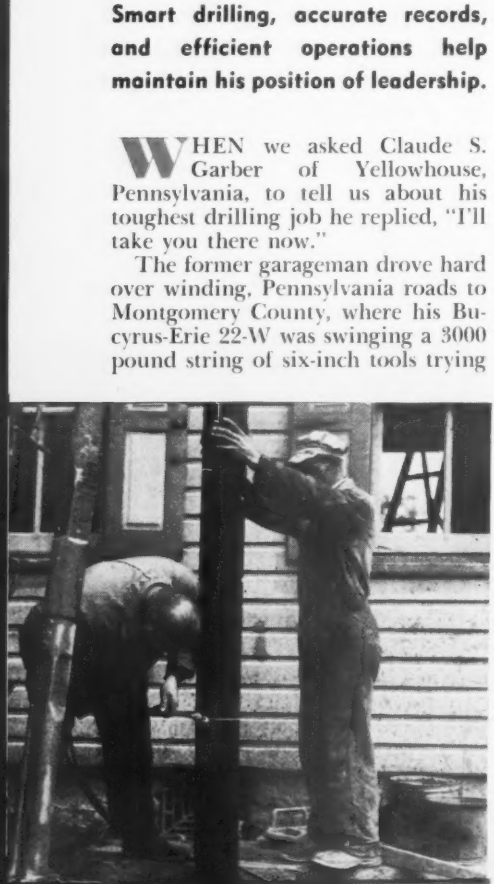
The former garageman drove hard over winding, Pennsylvania roads to Montgomery County, where his Bucyrus-Erie 22-W was swinging a 3000 pound string of six-inch tools trying to reach water for a country home. The hole was only 20 feet down after six weeks of work.

"Look at those iron rock boulders," explained Garber. "They make drilling tough and in this neighborhood it's hard to get a straight hole. We started with a 10-inch bit, lifted out piles of loose boulders, bailed several cave-ins of sand, clay, and gravel, and just now set that short length of six-inch casing.

"Now we're using a six-inch bit, but loose clay and cave-ins still are bad. You can see how big a hole we've got around that casing just from drilling boulders, and bailing clay and sand. I don't know how long this job'll take, but we'll never give up. Never!"

As the bit pounded iron rock, he stated that the six inch casing would be pulled and replaced with 10-inch casing as soon as a straight hole was assured. "We'll stick it out and should finish with a 10-inch hole about 125 feet down," predicted Garber.

Sticking to the job until com-



• After donning glasses, Garber quickly cuts the final length of casing with an acetylene

pleted is a typical C. S. Garber characteristic developed from extensive experiences with machinery and a thorough knowledge of underground formations in his part of the state. He knows the capacities of his machines and knows, too, where to expect granite, flint, red shale, gravel, conglomerate, sand, limestone, sandstone, iron rock, or Wissahickon schist.

Guarantee Builds Confidence

That is why at contract signing time he can promise, as his business cards proudly proclaim: *"All Work Guaranteed. If No Water Is Found, No Charge Will Be Made."* He knows this statement builds confidence in the eyes of his customer—and he hasn't had a dry hole yet.

Garber's headquarters are at Locust Grove near Yellowhouse, Pennsylvania, but his well drilling activities carry him from Lebanon east to Philadelphia and from Lancaster north to Allentown. Drilling takes him to many of the small towns in a radius of about forty miles in which the bulk of his wells are for residences. A good number however, are for farm, suburban home, air-conditioning and industrial purposes. Test, blast, and sink holes also are common with him and his experiences include prospecting for minerals such as iron ore and copper.

Because his experiences have been so varied he has drilled several unusual wells. Among them is one whose water level seemed to change with the tide. He has no other explanation for the fluctuation. On another well he was down 110 feet without water when a strata of oyster shells was hit. He doesn't know how the shells got there, but a foot deeper gave him a good producing well. Claude wonders, too, whether he hit some strange underground river the day he bailed hundreds of minnows from a 125-foot hole near Sumeytown. Experiences such as these make Pennsylvania an interesting drilling locale.

One of Garber's interesting experiences had to do with a well put in for drinking and air-conditioning purposes for a funeral parlor in Reading. The well produced so highly that discharge water from the air-conditioning unit in addition to other water drainage could not be handled by the city's sewerage system. When a complaint was registered, Garber advised the mortician to sink a hole 50 feet from the well to receive the discharge.

The funeral director took the suggestion under advisement. Apparently he consulted another driller, for a few days later he came back and said, "Garber, your idea to drill another hole is impractical. The

• Garber considers this method a quick, accurate measurement of a well's recharge. A moment after bailing water, this corked bottle is lowered with a string into the well. Garber measures the number of inches the floating bottle rises in exactly one minute and mentally computes the gpm from it with this simple formula for six inch wells: 1.2 × rise in inches per minute = approx. gpm.

drainage water will pollute the original well."

"No it won't," said Garber. "Not the way I'll do it. To make sure, we can test the sink hole with dye. If the coloring matter reaches the well we will know it will be polluted."

"But how will you prevent pollution?" asked the mortician.

"Well," replied C. S., "that's a trade secret, but if the hole doesn't do what I say it will do, the job won't cost you a nickel."

The hole was put in and today backs up every claim made for it without lowering the temperature or polluting the well. Claude earned the funeral director's respect and that of others who now "Go to Garber for a good well."

The prosperous eastern Pennsylvania driller drills six, eight, ten, twelve, and sixteen inch holes with the present help of his son Russell, Earnest Renninger, and Linwood Renninger. His rolling stock includes a personal car, four service trucks, and five drill machines. His "heavy weight" machines are three 33-W's and one 22-W, but the machine he respects the most is his Bucyrus-Erie 23-P.

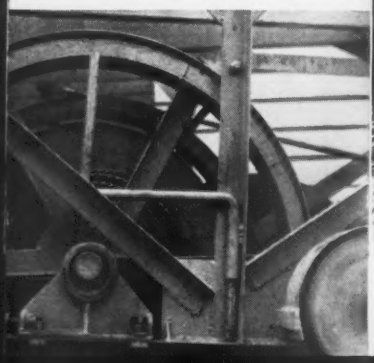
"We call that baby the 'peanut cracker'," he said. "You know why? When it was still new someone said, 'You expect to drill a hole with that outfit? Why, it won't crack peanuts!' I said, 'You watch.' And the fellow did. He was amazed at the way that little rig put in hole. We still call it the 'peanut cracker'."

Believes in Machinery Care

C. S. has great pride in his rigs. A garage proprietor for 14 years, he believes in proper care of machinery. His primary concern is keeping them in good operating order, including adequate lubrication, and he likes to anticipate trouble. He has operated all makes of rigs, but sincerely considers Bucyrus-Erie drills the finest and cannot praise them too highly. Yet he admits that even these machines require "preventive maintenance" to keep them on the job constantly.

Refinements on his rigs display the Garber "touch" to justify one of his basic business principles: Lighten the operator's work for more hole and greater profits. Among his ingenious devices are jack locks, derrick crank holder, tool guide hook, rear end motor switch and starter button, and bit and bailer brackets. All weldments were put in by his son Pvt. Claude, Jr., now in Germany, who was a certified welder and, according to his dad, an excep-

• Inserted in a small length of pipe welded to the frame, Garber's derrick crank always is handy.



• Vibration cannot change the setting of this jack locked with a pin dropped through an eye weldment on the truck frame.

• Motor key and st button are in easy r at the rear of Gar rigs.

tionally efficient and practical well driller.

Three of his employees who also were good men on the job include his son-in-law Cpl. Walter M. Reigner somewhere in Germany, Cpl. Royden L. Fry now in Burma, and Sgt. Geo. G. Hafer with the 8th A. A. F. in England. All were very capable and practical well drillers.

Entirely practical himself, Garber has no faith in divining rods and other so-called water finding paraphernalia.

"One time," recounts C. S., "a customer wanted his well put in some distance from the house. I suggested that he put it in *next* to the house to avoid ditching, piping, plumbing, etc. But no, the customer said the 'fellow with the sticks' prophesied water would come in at 60 feet at only one spot on the property. I couldn't change his mind so I drilled where he wanted me to.

"Well, we hit 60 feet and it was bone dry. We went another 10 feet for good measure. Still dry. Then I said, 'We'll let the hole stand for one week.' I came back a week later and showed the customer there still was no water. So just to prove that the 'fellow with the sticks' was wrong, I went down and finally hit water at 210 feet.

"The funny part," laughed Garber, "came when the diviner accused me of passing water at 60 feet without telling the customer just to get footage. But he knows better now."

Hole Went 1275 Feet

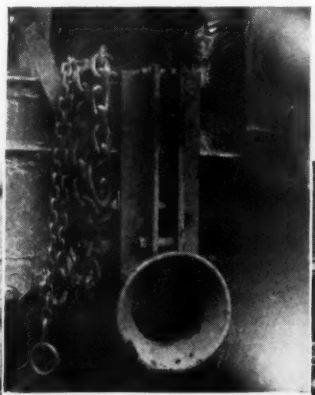
Garber has had well drilling experiences in both the hills and valleys of rolling Pennsylvania. The rich valley farms produce good wells, but he always marvels at the hill wells. Drilled for the poorer farmers, these usually are completed in one day and cased for 50 feet as they go through clay and gravel (not rock) to hit water at only 60-foot depths. Garber, incidentally, will always drill a farm well first.

The deepest hole Claude put in took two months as it went through limestone, mica, and granite to 1275 feet. Started at 10 inches, it was reduced to eight inches at 200 feet and finished at six inches from a depth of 200 feet for a pump test of 275 gpm. Garber's best producing well is only 256 feet deep through limestone. Even today the 12-inch hole pumps 1600 gpm.

Watching Garber at work impresses one with the efficiency of his operations. Each job is anticipated and its service truck equipped with

(Continued on page 22)

• Initials C. S. G. and an assigned number are welded to each bit for tool identification.



• The tool guide hung over a hook welded to the drill frame.

• Welded brackets extended over the side hold bailers and bits on each drill outfit.

Legal Pitfalls Drillers Can Avoid

by
A. L. H. Street

Says the author: **It is impossible to apprise drilling contractors fully of limitations on customers with whom they deal, yet the limitations may rise to plague the driller and deprive him of his compensation. Only a lawyer with a definite set of facts before him, and a knowledge of the laws of his state, can reach a trustworthy opinion. Nevertheless, a driller with a general knowledge of principles will be able to sense legal pitfalls which can be avoided by a visit to his lawyer.**

RIGHT TO TAKE water from *springs* on another person's land does not confer a right to drill a well. So decided the Vermont Supreme Court in the case of *Magoon* v. *Harris* (1873) 46 Vt. 264. The decision is of interest to drillers because, for instance, it necessarily follows that if A hires B to drill a well on C's land, the driller would have no valid claims against C for interfering with his performance of the contract with A.

• If Magoon hires a driller to put in a well on Harris' land, the driller never can have claims against Harris.

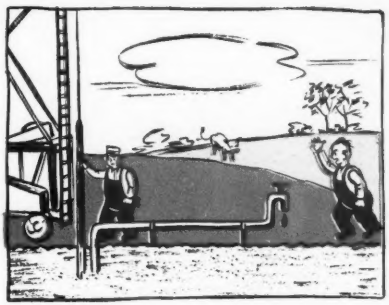
In the Vermont case, Harris deeded a piece of land to the parties through whom Magoon and Halow derived their title. The deed also granted the right to take water from springs on other land retained by Harris, for use by Magoon and Harlow on the land bought by them. Later Harris drilled wells near by and Magoon and Harlow sued to restrain Harris from interfering with their use of the wells. In deciding the case in favor of Harris, the defendant, and referring to the deed, the court said:

"It grants the privilege of taking water from springs; and does not grant any right to any other water. A spring of water is a place where water by natural forces usually issues from the ground. The places where the defendant reached water by orifices in the ground, and where the

water did not flow to the surface, are wells, and not springs. The grant, therefore, was of a privilege of taking water from the places in the ravine where the grantees did take it without controversy, and not from those places in the ravine where the defendant dug. The evidence does not satisfactorily show that the digging of these wells by the defendant, interfered with the water of the springs . . . in any degree; and, it is not necessary to determine whether, if it did so interfere," the grantees, Magoon and Harlow "would have a right to stop the interference."

Had the court deemed it necessary to decide whether or not defendant had a right to sink wells which would have diminished the flow of water to the springs, to the prejudice of the grantees of the deed, the chances are that it would have decided that defendant did have that right. We base this opinion upon what was decided by the Massachusetts Supreme Judicial Court in the case of *Davis* v. *Spaulding*, 157 Mass. 431, 32 N.E. 650. It was there ruled that where a deed to a small tract of land also granted the right to use water from a well located on land retained by the grantor, through a pipe then laid to a house on the tract sold, "as now used," the deed did not prevent the grantor from drilling wells on the land retained by him for the benefit of that land, although the effect was to cut off the water supplied through the pipe mentioned. Said the court:

"It is impossible to know in what direction percolating water finds its way into a well; perhaps only through the bottom of the excavation, and perhaps through the surrounding as well as the subjacent land. Its ways of approach, and its amount vary with the operation of obscure natural causes, not controlled by the owner of the land, through which it passes. If the grant of such a well, of the privilege of drawing water from it, were held might derive a supply of water, the burden would be very indefinite, uncertain and shifting, and would tend, without any adequate corresponding benefit, to prevent the improvement of land by buildings, and its use for mining, quarrying, and many other useful purposes. Such a result would be contrary to the public good."



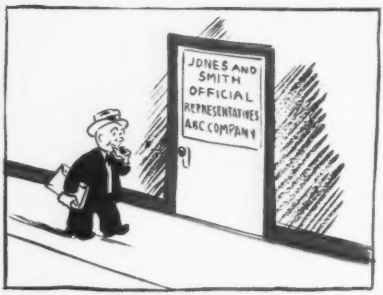
• Although Spaulding lets Davis pipe water from Spaulding's land, Spaulding still has a right to drill a well on his own land even though it affects the supply of water to Davis.

The attitude of this court depicts the fairly general attitude courts take toward rights in subterranean flowage of water.

Deal Only With Authorities

We pass now to the case of a contractor who is called upon to drill a well for a corporation either public or private. He should assure himself in a manner appropriate to the size and obligation that the officials representing the corporation or body are acting within their legal powers. It is often advisable that this be done by independent inquiry into the authority of those acting upon behalf of private or public corporations. One reason for being careful in such cases lies in protecting right to collect the contract price, for it is a fundamental rule of law of practical-

ly universal application that persons dealing with those who purport to represent a corporate body are bound to take notice of limitations upon the powers of that body and upon the authority of its representatives. Another reason for caution lies in guarding against being made a party to a

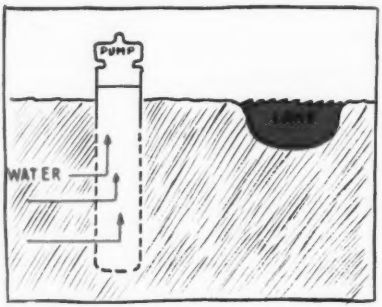


• **Every driller should be certain the parties he is dealing with are officially authorized to pay the contract price.**

suit for damages resulting to third parties from the unauthorized drilling of a well.

A decision by the Massachusetts Supreme Judicial Court is illustrative. There a water company had charter power to acquire land near what is known in Massachusetts as a "great pond," in which the Massachusetts public have certain rights peculiar to that type of body of water. The power was given by the legislature of the commonwealth to enable the company to conserve water of the pond *which percolated from it* and to draw water *directly* from the lake, provided that the lake level should not be reduced below a certain depth. The company undertook to sink a well which would intercept subterranean water *flowing into the lake*. Thereupon the Attorney General of Massachusetts sued to enjoin completion and operation of the well. The court decided that an injunction was proper under the circumstances, on the grounds that the company possessed no charter power to intercept waters flowing underground toward the lake, that the project would involve lowering the lake level beyond the point fixed in the company's charter, and that such lowering of the lake would impair its use by the public for fishing, boating, etc., and also cause exposure on the shore of slime, offensive vegetation, etc., etc. *Attorney General v. Jamaica Pond Aqueduct Corporation,* 133 Mass. 361. The following excerpt from the opinion of the Supreme Judicial Court probably reflects what almost any court would decide under similar circumstances:

"The defendant contends that, when it took under this statute the land in question, it took the entire fee of the land (absolute title) and thereby acquired the right which any owner has to sink wells in his land



• **Courts have refused to grant the right to drill wells which lower a public lake's level by intercepting water that supplies it.**

and intercept the underground streams of currents. But this claim cannot be sustained. The uniform rule in Massachusetts is that when the Legislature delegates to a corporation or person the power to take land of another in the exercise of the right of eminent domain, such corporation or person takes only such

(Continued on page 20)

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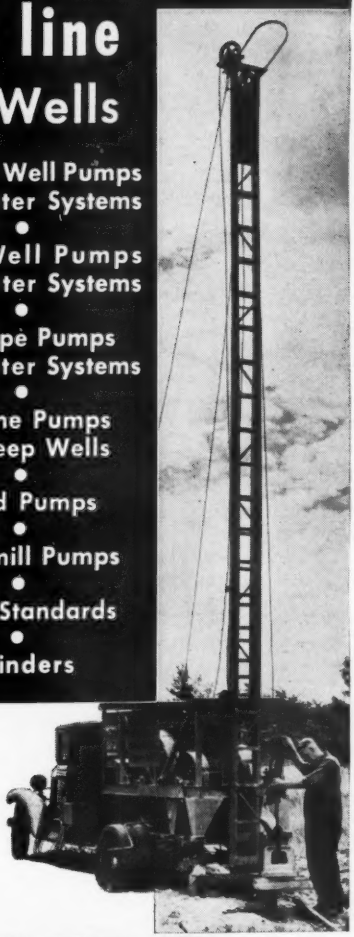

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• Marines on Iwo Jima lug water from dump.

• Filling cans with fresh water evapor... from the sea at 250 gph. Green Island.
Official Navy P...

• In tree blasted area on Leyte, preciously guarded water supply and portable reservoir follow mechanized units.

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• Digging wells with modern equipment quickly obtained water sources from advance Pacific sands.
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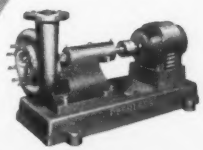

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Facts on Survey Controversey

OPPOSITION to the U. S. Geological Survey appropriation bill, which requested $15,000,000 to expand its post-war services, has been raised by water well drillers almost unanimously. Their fears of lost revenues, bureauocracy, and jeopardization of free enterprise, however, seem to be entirely unjustified in light of the facts.

Cite Needs

The Survey stated it would require the money to meet the increased demands for its services, repair and rehabilitate station installations, increase the number of stream gaging stations, establish new surface water and ground water techniques, obtain modern equipment and instruments, and put in more observation wells.

To Create 200 Jobs

In order to do this, the Survey proposed to be supplied with 482 cars, ten $18,000 drilling machines (to be obtained from the military) and other miscellaneous equipment to put in more test wells. They stated that the post-war program would annually provide 2000 man-years of work, create more than 200 new jobs (to be filled by Water Resources employees now in the service), and open positions for engineers and scientific workers.

Drillers voiced primary objection to the government bureau's intention to perform production-well drilling for states or municipalities (on a share-the-cost basis) in direct competition with private industry under the pretense of carrying on cooperative observation-well studies. They cite an example of a $10,000 U.S.G.S. drilling job which could have been drilled by private enterprise for $1,500.

A Program — Not Appropriation

Perhaps complete investigation of the $15,000,000 request was not made before voicing objection, for the request is not part of bill No. HR-3024 and does not ask money for immediate post-war use.

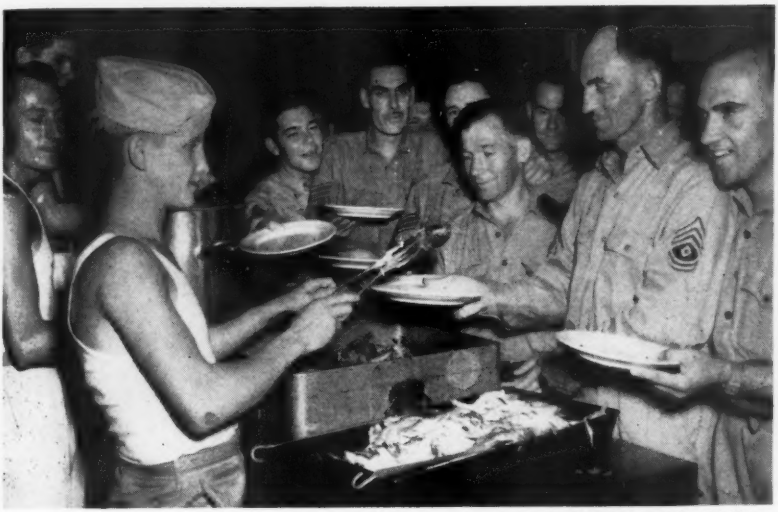
Instead—and this is important—the program submitted to the White House is a suggested appropriation for money to be used only if-and-when it is necessary to create employment to avert post-war depression.

It is claimed the Survey plans to operate on its present annual budget, to put in wells for observation purposes only — not for production pur-

(Continued on page 26)

You Helped

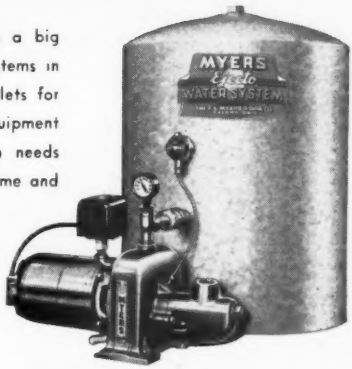
TO PASS THIS AMMUNITION!



SIGNAL CORPS PHOTO

A MESSAGE TO MYERS DEALERS

You and your service department have done a big job on the "food front." By keeping water systems in operation — by piping water to additional outlets for productive use — and by allocating new equipment where it serves the greatest food production needs you have contributed to the food supply at home and overseas. Your customers and prospects won't forget your helpful cooperation. Their good will is a big asset to you for future sales of Myers pumps and water systems.



TAKE OFF YOUR HAT TO MYERS PUMPS and WATER SYSTEMS

THE F. E. MYERS & BRO. CO.

Dept. C-56, ASHLAND, OHIO

NEWS OF THE MONTH

New Book Explains Centrifugal Pumps

EXPLAINING that "most so-called pump failures are due to misapplications" rather than mechanical deficiencies, The Deming Company's newest book "Facts You Should Know About Centrifugal Pumps and Impellers" will prove valuable to every distributor of pumps.

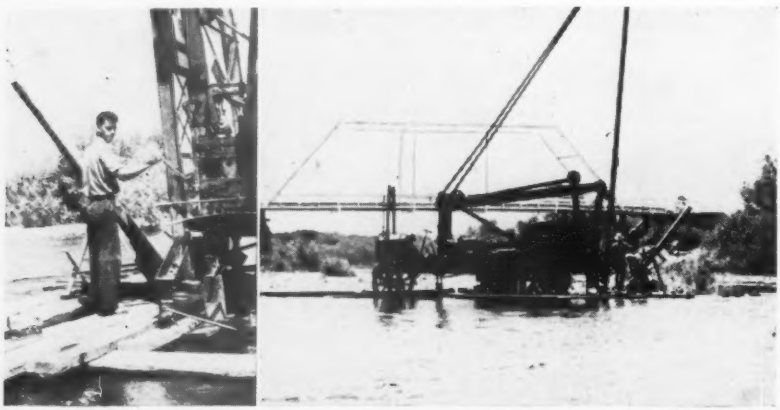
Information contained in the book is applicable to all makes of pumps, the manufacturer stated, and will assist those who are directly concerned in the application and selection of centrifugal pumps of all standard types.

Topics covered include impellers, hydraulic balance, mechanical balance, side-suction pumps, double suction pumps, and semi-open impellers. The 24-page book, free from The Deming Company at Salem, Ohio, is profusely illustrated in two colors.

Survey Subject Of Illinois Wellmen

CONTINUED opposition to the proposed United States Geological Survey $15,000,000 postwar program was unanimously voiced by the Illinois Water Well Drillers Association at their June 24 meeting held in Chicago.

Although approving the present work of the Geological Survey with



• B. E. Belknap of Reeley, California, six years ago put in three eight-inch holes in the Kings River for bridge foundation tests. Red Steel 12 ga. double casing was used. Near each bank of the river he hit solid footing at 48 ft. but went down to 54 ft. with the middle hole. He used 12x12 and 3x12 cribbing to hold his rig, a home-made affair, and used the same cribbing to move the rig back from the high west bank (to right in photo). Son Bill, now serving with Military Police in Germany, operated the rig.

a budget of $3,000,000, the Illinois contractors condemned the proposed program as misrepresenting the facts, setting the government in business with tax money, and displacing private enterprise at high costs. Charges that well drilling has been solicited and performed at no cost by the Geological Survey in competition to private drillers was cited as contradictory to the American free enterprise system. (See editorial, p. 16 — Ed.)

Discussion at the meeting favored an answer to the *Saturday Evening Post* article which indicated a general nation-wide lowering of the water table. Consensus of opinion at the meeting claimed only heavily-pumped industrial areas had severe cones of depression in their immediate vicinities but heavy pumpage has not affected suburban areas where most wells are installed. A rebuttal in the form of a booklet to be offered prospective customers was suggested but not acted upon.

Three Million Acres Irrigated in Texas

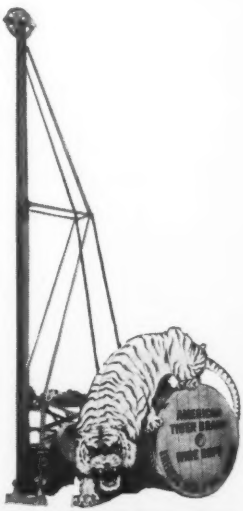
NEW HIGHS in irrigation wells for Texas plains were recorded by the Texas board of water engineers in cooperation with the U. S. Geological Survey in a recent progress report.

Approximately 3,500 newly-drilled wells put 450,000 acres under irrigation in 1944, the report stated. Principal irrigation districts amounted to 3,000,000 acres with one well to every 850 acres.

Available ground water supply is not inexhaustible, said the report, nor is concentrated heavy pumping advisable where wells average one in every 290 acres.

"MOR-SPRING"
is made for
faster, easier drilling

U·S·S American TIGER BRAND MOR-SPRING Wire Lines are stronger, tougher, more flexible. That's why they are so widely used for water well and blast hole drilling. They help you get down faster. Mean less time out for repairs and replacements. Ask your dealer for these superior lines.



USS STEEL

AMERICAN STEEL & WIRE COMPANY
Cleveland, Chicago and New York
COLUMBIA STEEL COMPANY, *San Francisco*
United States Steel Export Company, New York
UNITED STATES STEEL

U·S·S American TIGER BRAND MOR-SPRING WIRE LINE

Pitfalls . . .

(Continued from page 10)

estate in the land taken as is necessary to carry out the purposes for which it or he is permitted to take it. We are of opinion that the defendant had no authority to use the land taken for the purpose of digging wells and appropriating underground currents."

Insist On Written Agreements

Our final point is built around an interesting decision rendered by the Massachusetts Supreme Judicial Court which shows that where one merely holds a permit or license to use a well on land owned by another his rights are considerably more restricted than those of an outright owner. The case in which the decision was rendered *(Clapp* v. *City of Boston,* 133 Mass. 367) is illustrative of the fact that a mere license to put lands to a certain use is about the most fragile right which courts protect.

Clapp owned a tract of land near Boston and had a license to maintain a well and hydraulic ram on near-by land owned by the party from whom Lewis purchased. The county condemned, for highway purposes, the land on which the well and ram were located. Lewis thereupon gave Clapp *oral* permission to locate a substitute well and ram on land retained by Lewis, near the highway. An improvement constructed by the defendant city flooded the land and thereby prevented Clapp from using the well. He sued the city for damages and lost his suit. The Supreme Judicial Court decided, in substance:

If the act of the county in laying out the highway did not terminate the original easement (permit) to maintain the well on the strip taken over for highway purposes, Clapp

We back up the Driller!

A good well deserves a good pumping unit. From 100 feet and deeper, the JENSEN Unit makes water cheap and dependable throughout America for cities, industries, camps, parks, railroads, public utilities, farms and ranches. No other way to pump a well is so completely satisfactory.

Be in a position to back up your own work by recommending the best pumping unit on the market —write now for Bulletin No. 26—on the JENSEN!

JENSEN BROS. MFG. CO.

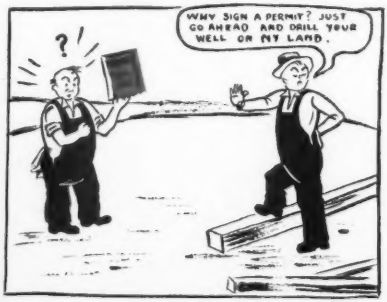
14th and Pacific Streets, COFFEYVILLE, KANSAS, U. S. A.

EXPORT OFFICE: 50 CHURCH ST., NEW YORK CITY, NEW YORK

had no right to change the site of the well.

The oral permission given by Lewis to Clapp to maintain the new well gave Clapp no interest in the land itself. The permission was revocable by Lewis at will and would have been ended by his death or his transfer or lease of the land on which the new well was located. And, when defendant city acquired the right to flood Lewis' land, it automatically terminated his right to maintain the well or to permit Clapp to maintain it.

Although the particular facts of the Massachusetts case were such as would not be apt to recur often, the foregoing review of the case should serve to remind well contractors that



• When a city flooded land on which Clapp had a well, Clapp lost his damage suit since he had only oral permission to retain the well located on another's property.

it frequently behooves them to make sure that one who seeks to hire them to drill a well has a fixed right to have it drilled at the particular location, especially if the driller is not both protected by his contract against the contingency of not being paid if the land owner revokes his permission and interferes with the drilling, and knows the person for whom he is performing the work to be personally good for the contractor's bill.

GIVES WINGS TO RUNNING WATER
SKY POWER
WATER SYSTEM
CASE IS PUNCTURE-PROOF AGAINST .22 RIFLES
AVAILABLE WITH AUXILIARY PUMPJACK AND GAS ENGINE
Here's a wholly new conception of windmill power —a full-fledged running water system fully as modern as an electric system.
You can sell a Sky Power Windmill now as the first step in this system. Automatic controls, gauges and pneumatic tank can be attached when they are available.
This system fulfills the farmer's dream of more comfortable, more profitable farm living. It is made to order for the 3 million farms without electricity.
Monitor
STORM•SAFE
WINDMILL WATER SYSTEM
THE Monitor LINE
DEEP WELL WATER SYSTEMS • WINDMILLS • HAND PUMPS • PUMP JACKS • ENGINES • WATER WELL SUPPLIES
WITH THE 3 VITAL STORM-SAFETY FEATURES
✓ New Full-IN Control of No. 4000-W Windmill prevents mill from flying into gear, relieves storm-strain on cable control.
✓ Storm-Safe V-Brake locks wheel, anchors it safely in high winds.
✓ Wind Governing gives constant pump speed in variable winds: prevents racing out of control.
BAKER MANUFACTURING CO., EVANSVILLE, WIS.

BRANCHES:
BAKER MFG. Co.: Minneapolis, Minn.; Madison, Wis.; Fort Dodge, Ia.; Cedar Rapids, Ia.; Omaha, Neb.; Kansas City, Mo.; Enid, Okla.; Hutchinson, Kansas.
BAKER MFG. LTD., Winnipeg, Canada.
AXTELL CO.: Fort Worth, Tex.; Amarillo, Tex.; Lubbock, Tex.; San Angelo, Tex.

Good Wells . . .

(Continued from page 7)

tools and material for the day. Sharp bits always are on the job and dull ones returned at the end of the day for redressing.

His tool identification record is practical, too. Each bit is assigned a number and along with his initials is welded in. Wear of the weld down to the native stock does not obliterate the markings, states Garber, for the heat of welding leaves easily discernable figures. The size, type, weight, date of purchase, and supplier's name are kept on record cards. In this manner Garber knows whose bits have the highest quality, their life expectancy (he orders new bits far in advance), and the size of each for smart fishing when necessary.

Never Uses Jars

Although he has a set from his first machine, Garber does not use jars. He finds heavy stems drill faster and believes that a bumper does the trick better than jars. For fishing jobs—which have been few—he relies almost entirely on horn sockets, combination sockets, slip sockets, and spuds.

When a well nears completion, Garber has his men load acetylene tanks and torches to the service truck for the job. He likes to be in on the finish of every job himself and cuts the final length of casing with the acetylene method which he claims saves manpower and increases production.

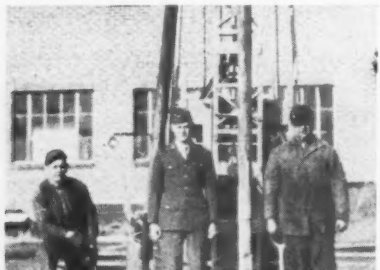
A glance at Garber's shop verifies his efficient operations. Housed in a brick building with a thermostatically controlled oil heater, it is protected with automatic fire extinguishers. A third of it is partitioned off for the forge shop in which are a furnace, bit dresser, temper baths, bit storage, and overhead swinging crane with ample room through the center to hold two service trucks.

The shop proper can take four private cars and contains the following mechanized units:

One 9″ lathe with 42″ bed
One welding machine
One valve refacer
One pipe threading machine
Two stationary electric power drills
One air compressor (for tires, paint spraying, and well developing)

Learns Value Of Adequate Insurance

Garber's investment in valuable shop equipment makes him appreciate the need for sufficient insurance. Not only does he carry machinery and property insurance, but also insurance to cover every legal possibility before, during, and after a well is drilled. On a job near Douglassville he recalls receiving permission to cross a small strip of grass to the job. The well went smoothly enough, but the wives of the customer and a neighbor began an argument that ended with the neighbor erecting a small fence across the only way Gar-



• Claude, Jr. (center) during recent furlough visits with Russell and Dad on a job.

DATE STARTED April 2 DATE FINISHED April 7, 1945

CUSTOMER'S NAME Frank W. Smith

ADDRESS 2952 W. Lane St.

	START	FINISH	TOTAL	R. W. CASING	AMOUNT FEET	LESS OLD HOLES	DEPTH 20	GAS	OIL	TRUCK GAS	TRUCK OIL	MILEAGE
MONDAY	7:00	4:30	9		8			9				26
TUESDAY	7:00	5:30	10		14			10	1qt.			26
WEDNESDAY	7:00	5:30	10		11			8				26
THURSDAY	7:00	5:30	10		12			10				26
FRIDAY	7:00	5:30	10		10			9	1qt.			26
SATURDAY	7:00	5:30	10		9			8				26
SUNDAY							64					
TOTALS			54		64		84	54	2			156

Gallons Per Minute 9 Standing Water Level 15 Water Level at Test 27 Size of Hole Start 6 Size of Hole Finished 6

Condition of Hole ok.

Driller Jack Thomas

Garber's operators keep well record on a job card.

ber could use to pull out his rig. After consulting his lawyer and his insurance agent, Garber smashed the fence, moved his rig, and was subsequently sued for trespassing. In this expensive manner he learned to ask for both entry *and* exit on succeeding similar jobs. It also taught him that insurance to cover every angle is cheaper than a lawsuit.

Contract Forms

The thoroughness in which he handles every detail is indicated in the records he keeps. Printed contract forms clearly state the price per foot (usually from $2.50 to $10.00) and a carbon copy is kept in his file.

While drilling the well, each operator records his daily time and depth drilled for the day on a Job Card. Other well information also is noted on this card which is turned in at the end of the job. From this record a cost accounting of labor, fuel, and depreciation is transferred to a Cost Card.

A third card pertaining to the same job lists every item used, such as pipe, fittings, pumps, etc., and actual drilling costs which is charged to the customer. The difference between the latter two cards indicates the profit or loss. Mrs. Garber takes credit for the fine bookkeeping.

Although no well log is required in Pennsylvania, Claude maintains a

PHONE—YELLOW HOUSE 93167 ALL WORK GUARANTEED

C. S. GARBER

ARTESIAN WELL—SINK HOLE & QUARRY

DRILLER

DOUGLASSVILLE, PA., R. D. No. 2 WE GO ANYWHERE

Agreement

THIS AGREEMENT made this ..... day of ....., A. D. 194...

between C. S. GARBER, party of the first part,

and ..... party of the second part.

Witnesseth: The said party of the first part agrees to furnish the machinery, appliances and labor necessary to drill a ..... on the premises owned by the said party of the second part.

The said party of the second part agrees to pay for the said drilling $ ..... per foot for each foot drilled, and $ ..... per foot for each foot of casing used in connection with the said drilling, and $ ..... for setting up the machinery.

It is agreed that if the said drilling operation is abandoned by direction of the said party of the second part, the said party of the first part shall be paid by the said party of the second part for the number of feet drilled and the number of feet of casing used on the same basis as hereinbefore set forth of $ ..... per foot for each foot drilled, and $ ..... per foot for each foot of casing used.

It is further agreed that payments shall be made on account of the drilling operation on the first day of each month following the commencement of drilling, the final payment to be made when drilling has ceased, either by direction of the said party of the second part, or by reason of the work being completed.

In Witness Whereof the said parties have hereunto set their hands and seals the day and year first above written.

..... (SEAL)

..... (SEAL)

• Short, clearly worded contracts are important to Garber's business.

file of wells drilled showing size, depth, gpm, formations, casing length, when started and completed, etc.

Records such as these helped Claude Garber successfully land the drilling job for the Jacobs Aircraft Engine Co. of Pottstown. Contracted by the government to get water for

(Continued on page 25)

WIT BITS

An officer came upon a sergeant who was yelling at two soldiers bathing in a flooded foxhole.

"What's the trouble here, Sergeant?"

"Why, these dirty bums are washing themselves in the water they're going to sleep in, sir."

"Sam, how long does yo' get in the jug for shootin' yo' wife?"

"Two weeks."

"Only two weeks for killin' yo' wife?"

"Yeah, then I gets hung."

Brown: "So you're setting your college graduate son up in the bakery business?"

Black: "Yes, he's so keen for dough and such a swell loafer, it looks as if he would rise."

"Llewellyn goes for SWING Music"

Chief: "Anyone round here good at shorthand?"

New Recruit: "Sure I am."

Chief: "Report to the galley. Dillabough says he's shorthanded on dishwashers."

Judge: "Seems to me you've been coming up before me for the past 20 years."

Victim: "Can I help it if you don't get promoted?"

Jumbo: "Say, Harry, did you ever eat any horsemeat?"

Harry: "No, did you?"

Jumbo: "Well, I'm not sure, I thought I was eating beefsteak the other night when someone yelled 'Whoa' and the stuff stopped right there in my throat."

A teacher was giving his class a lecture on charity. "Willie," he said, "if I saw a boy beating a donkey and stopped him from doing so, what virtue would I be showing?"

Willie (promptly): "Brotherly love."

Corporal: So the drill sergeant called you a blockhead?

Rookie: No, he didn't make it that strong.

Corporal: What did he say?

Rookie: All of a sudden he yelled, "Put on your hat—here comes a woodpecker."

"Do you know Art?"

"Art who?"

"Artesian."

"Sure, I know Artesian well."

The big business man had died and gone—well, not to heaven. But hardly had he settled down when a hearty hand slapped him on the back. It was the persistent driller who always tried to sell him an air-conditioning system on earth.

"Well, Mr. Smith," chortled the driller. "I'm here for the appointment."

"What appointment?"

"Why, don't you remember? Every time I entered your office on earth, you told me you'd see me here!"

Good Wells . . .

(Continued from page 23)

air-conditioning and heat treating purposes, C. S. put in six wells. All were started at 16 inches to a depth of 30 feet and 14-inch casing inserted, then reduced to 10 inches to 200 feet with 10-inch casing and finished at eight-inch diameter. He used his 22-W and a 33-W for the job. All holes went through sandstone except two in which caving limestone caused trouble. Continual bailing solved this problem.

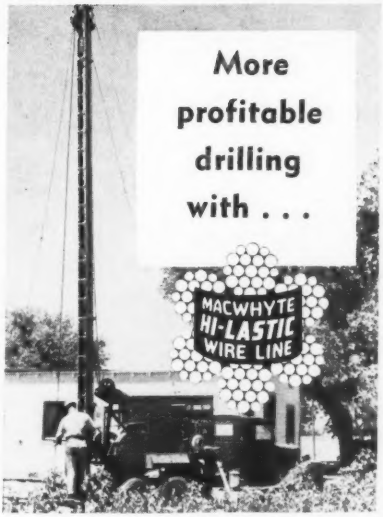
Power Line Affects Pumpage

Thorough, accurate pump tests on each hole were necessary before the contract was fulfilled. Claude used his 30-hp and 60-hp Deming turbine pumps on the wells and tested them individually and together for 40 hours.

Oddly, one of the holes showed a gpm variation of 480 to 550. A check revealed that a lowering of the electrical pulsation in the line was hardly noticeable in the speed of the motors, but quickly showed itself on the altmeter and water gages.

There never is a slack in Garber's drilling business so he creates his own off-season to indulge in his favorite hobbies, fishing and hunting. His week end fishing and yearly hunting trips always result in a good bag of game, proving again that expert drillers can also be expert sportsmen.

Outstandingly successful in every endeavor, Pennsylvania's Claude S. Garber has built his well drilling business on sound principles that include smart drilling practices, exceptional operating efficiency, and comprehensive record keeping. In combination, they indicate reliability and build customer confidence that has helped Garber reach water well drilling leadership in his state.



Macwhyte "Hi-Lastic" has no equal for fast, profitable shallow well and blast hole drilling. Specially made for the job, with just the right elasticity to let the tools strike fast, hard, sharp blows. "Hi-Lastic" keeps the bit turning better on all types of formations—reduces tendency for the hole to get out of round. Internally lubricated. No manila cracker needed.

For profitable deep well drilling, Macwhyte Standard Tool Line delivers maximum speed and effectiveness. Has the proper elasticity.

For sand lines, use Macwhyte coarse laid (6 x 7) or Macwhyte soft laid (6 x 19) . . . in Mild Plow Steel grade.

No. 828

Get the CORRECT line for your equipment from

MACWHYTE COMPANY

2939 Fourteenth Avenue, Kenosha, Wisconsin, or any authorized Macwhyte Distributor or Mill Depot

BARGAIN COUNTER

To the reader who wishes to advertise used equipment in "Bargain Counter" Section.

All advertising in this section is payable in advance. Enclose your check or money order with copy. Rate [illegible] per line. Minimum charge $1.20. No discounts; no commissions. Read these instructions carefully. The average line contains 28 characters (20 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number if blind advertisement is desired. Count your own copy to save delay. Holding up your advertisement one month to secure approval of revised copy or an additional remittance, may cost you real money in a lost sale. Be sure to enclose the correct amount of money with your order. Closing date—10th of preceding month. Example—January issue closes December 10th.

To the reader wishing to answer "Bargain Counter" Section advertisements appearing on these pages:

Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of THE DRILLER, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

DRILLS

Keystone 3½ drill, rope or cable mounted on 1939 Chevrolet truck, in good condition, without tools. Price $1500. M. A. Stoltzfus, Talmage, Pa.

No. 240 manila or wire line Speed Star mounted on 1½ ton '36 Chevrolet. Complete with 5¾" tools and 200' of new manila cable. A-1 condition. Located in Western Penna. Box 0447

Wood frame well drill mounted on solid rubber tires. Single cylinder gasoline engine, 6 H.P. Geared bull reel with worm feed. Chain driven sand reel equipped for wire rope. Priced to sell. No tools. Box 0488

WANTED

Cable or jetting type drill. Prefer combination jetting and cable tool rig but will consider standard machine. Box 0366

One or two all steel drills, with or without tools. Give condition, age, size, lowest cash price. F. N. Hagmann, Jr., Vienna, Virginia.

Used well machine in good condition. Bucyrus-Erie 21-W, 33-W, or Armstrong 35. Please include information on price, equipment included, location of machine. Box 0432

MISC.

No. 8 Armstrong Bit Dresser with crane, dies and rings for 5", 6" and 8" bits and oil burning furnace with blower. $1500. Located in New York. Box 0468

New dart valve bailer 10" x 10 ft., 3/16" stock, also good Saunders 4-12" pipe threading machine. Cost $150. Sell $120. Stewart Bros., Schenectady 2, N. Y.

HELP WANTED

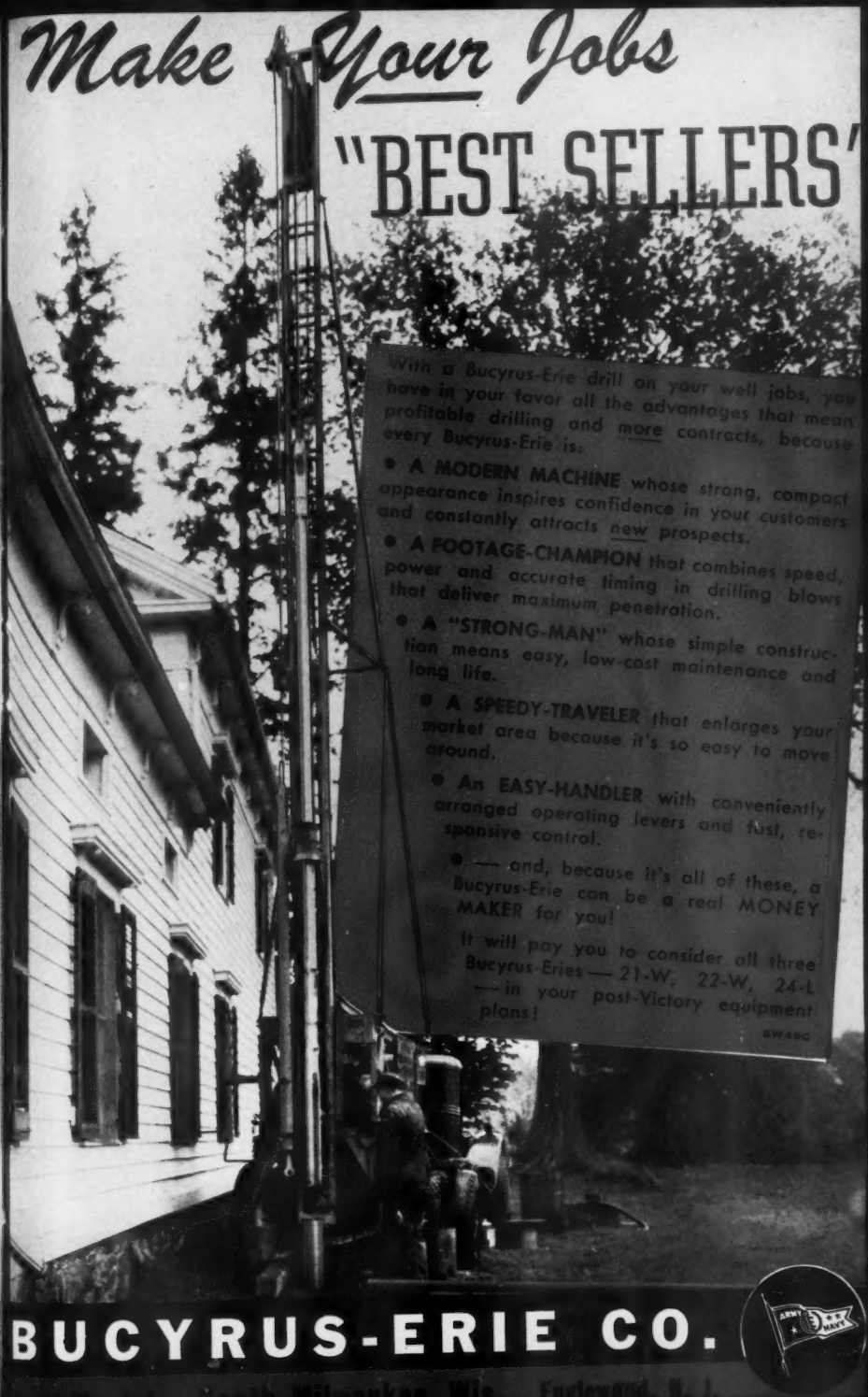
GOOD EARNINGS
Experienced driller. Steady work guaranteed. Earn average $100 weekly or more if qualified. Lower Mich. Must have car. Box 0478

Survey . . .

(Continued from page 16)

poses — and to sublet drilling to private contractors unless private drilling proves too costly. In rebuttal to a charge of a $1,500 job actually costing $10,000 the Survey asserts the latter amount was reduced to $5,000 at a hearing and that the actual cost of the three-inch job was only $1,200 or $300 less than claimed possible by private contractors.

Apparently, therefore, no fears of bureauocracy, jeopardization of free enterprise, or loss of drilling revenue need be harbored by the private contractor because the U. S. Geological Survey presently intends to continue a program similar to that carried out with apparent approval of drillers far and wide for the past 15 years.


Make Your Jobs
"BEST SELLERS"
With a Bucyrus-Erie drill on your well jobs, you have in your favor all the advantages that mean profitable drilling and more contracts, because every Bucyrus-Erie is:
• A MODERN MACHINE whose strong, compact appearance inspires confidence in your customers and constantly attracts new prospects.
• A FOOTAGE-CHAMPION that combines speed, power and accurate timing in drilling blows that deliver maximum penetration.
• A "STRONG-MAN" whose simple construction means easy, low-cost maintenance and long life.
• A SPEEDY-TRAVELER that enlarges your market area because it's so easy to move around.
• An EASY-HANDLER with conveniently arranged operating levers and fast, responsive control.
• — and, because it's all of these, a Bucyrus-Erie can be a real MONEY MAKER for you!
It will pay you to consider all three Bucyrus-Eries — 21-W, 22-W, 24-L — in your post-Victory equipment plans!
BW-4BC
BUCYRUS-ERIE CO.
ARMY
NAVY

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DRILLER

A journal for water well drillers

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The Driller, South Milwaukee, Wisconsin

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